

WHAT IS CLAIMED IS:

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1. A system for accumulating and evaluating electromagnetic phenomena of at least one power quality category of a power distribution system, comprising a circuit monitor that summarizes and trends said electromagnetic phenomena.

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2. The system of claim 1 wherein said circuit monitor is informed of its context with said power distribution system to provide for metering configurations and data analysis.

3. The system of claim 1 wherein the determination of a power quality index is expressed as a single number for each said power quality category.

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4. The system of claim 3 which combines a plurality of said power quality indices from a plurality of said power quality categories into a single overall power quality index.

5. The system of claim 1 wherein said trending of data includes alerting said system when said power quality changes.

6. The system of claim 1 wherein said at least one power quality category is weighted according to the load type present.

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7. The system of claim 6 wherein said power quality category is under voltage.

8. The system of claim 6 wherein said power quality category is over voltage.

9. The system of claim 6 wherein said power quality category is voltage imbalance.

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10. The system of claim 6 wherein said power quality category is waveform distortion.

11. The system of claim 6 wherein said power quality category is frequency variations.

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12. The system of claim 6 wherein said power quality category is voltage flicker.

13. The system of claim 6 wherein said power quality category is voltage sags.

14. The system of claim 6 wherein said power quality category is voltage swells.

5 15. The system of claim 6 wherein said power quality category is voltage interruptions.

16. The system of claim 6 wherein said power quality category is transient overvoltages.

10 17. A system for evaluating and trending power quality of a power distribution system comprising a system of networked circuit monitors, wherein each of said circuit monitors accumulates and evaluates the electromagnetic phenomena of at least one power quality category.

15 18. The system of claim 17 wherein each said circuit monitor is informed of its context with said power distribution system to provide for metering configurations and data analysis.

19. The method of claim 17 wherein the determination of a power quality index is expressed as a single number for each said power quality category.

20 20. The system of claim 19 which combines a plurality of said power quality indices from a plurality of said power quality categories into a single overall power quality index.

21. The system of claim 17 wherein said trending of data includes alerting said system when said power quality changes.

25 22. The system of claim 17 wherein said at least one power quality category is weighted according to the load type present.

23. The system of claim 22 wherein said power quality category is under voltage.

24. The system of claim 22 wherein said power quality category is over voltage.

30 25. The system of claim 22 wherein said power quality category is voltage imbalance.

26. The system of claim 22 wherein said power quality category is waveform distortion.

27. The system of claim 22 wherein said power quality category is frequency variations.

5 28. The system of claim 22 wherein said power quality category is voltage flicker.

29. The system of claim 22 wherein said power quality category is voltage sags.

10 30. The system of claim 22 wherein said power quality category is voltage swells.

31. The system of claim 22 wherein said power quality category is voltage interruptions.

32. The system of claim 22 wherein said power quality category is transient overvoltages.

15 33. The system of claim 17 wherein said system comprises a software application running on a networked personal computer.

34. A method of accumulating and evaluating electromagnetic phenomena of at least one power quality category of a power distribution system, comprising summarizing and trending said electromagnetic phenomena in a circuit monitor.

20 35. The method of claim 34 wherein said circuit monitor is informed of its context with said power distribution system to provide for metering configurations and data analysis.

36. The method of claim 34 wherein the determination of a power quality index is expressed as a single number for each said power quality category.

25 37. The system of claim 34 which combines a plurality of said power quality indices from a plurality of said power quality categories into a single overall power quality index.

38. The method of claim 34 wherein said trending of data includes alerting said system when said power quality changes.

39. The method of claim 34 including weighing said at least one power quality category according to the load type present.

40. The method of claim 39 wherein said power quality category is under voltage.

5 41. The method of claim 39 wherein said power quality category is over voltage.

42. The method of claim 39 wherein said power quality category is voltage imbalance.

10 43. The method of claim 39 wherein said power quality category is waveform distortion.

44. The method of claim 32 wherein said power quality category is frequency variations.

45. The method of claim 39 wherein said power quality category is voltage flicker.

15 46. The method of claim 39 wherein said power quality category is voltage sags.

47. The method of claim 39 wherein said power quality category is voltage swells.

20 48. The method of claim 39 wherein said power quality category is voltage interruptions.

49. The method of claim 39 wherein said power quality category is transient overvoltages.

25 50. A method of accumulating and evaluating electromagnetic phenomena of at least one power quality category of a power distribution system, comprising a system of networked circuit monitors, wherein each of said circuit monitors accumulating and evaluating said electromagnetic phenomena in a circuit monitor.

51. The method of claim 50 wherein each said circuit monitor is informed of its context with said power distribution system to provide for metering configurations and data analysis.

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52. The method of claim 50 wherein the determination of a power quality index is expressed as a single number for each said power quality category.

53. The method of claim 52 which combines a plurality of said power quality indices from a plurality of said power quality categories into a single overall power quality index.

54. The method of claim 50 wherein said trending of data includes alerting said system when said power quality changes.

55. The method of claim 50 including weighing said at least one power quality category by the load type present.

56. The method of claim 55 wherein said power quality category is under voltage.

57. The method of claim 55 wherein said power quality category is over voltage.

58. The method of claim 55 wherein said power quality category is voltage imbalance.

59. The method of claim 55 wherein said power quality category is waveform distortion.

60. The method of claim 55 wherein said power quality category is frequency variations.

61. The method of claim 55 wherein said power quality category is voltage flicker.

62. The method of claim 55 wherein said power quality category is voltage sags.

63. The method of claim 55 wherein said power quality category is voltage swells.

64. The method of claim 55 wherein said power quality category is voltage interruptions.

65. The method of claim 55 wherein said power quality category is transient overvoltages.

66. The method of claim 50 wherein said method comprises a software application running on a networked personal computer.